Primary Care and Public Emergency Department Overcrowding

ABSTRACT

Objectives. Our objective was to evaluate whether referral to primary care settings would be clinically appropriate for and acceptable to patients waiting for emergency department care for nonemergency conditions.

Methods. We studied 700 patients waiting for emergency department care at a public hospital. Access to alternative sources of medical care, clinical appropriateness of emergency department use, and patients' willingness to use nonemergency services were measured and compared between patients with and without a regular source of care.

Results. Nearly half (45%) of the patients cited access barriers to primary care as their reason for using the emergency department. Only 13% of the patients waiting for care had conditions that were clinically appropriate for emergency department services. Patients with a regular source of care used the emergency department more appropriately than did patients without a regular source of care. Thirty-eight percent of the patients expressed a willingness to trade their emergency department visit for an appointment with a physician within 3 days.

Conclusions. Public emergency departments could refer large numbers of patients to appointments at primary care facilities. This alternative would be viable only if the availability and coordination of primary care services were enhanced for low-income populations. (Am J Public Health. 1993;83:372–378)

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Introduction

Hospital emergency departments play multiple roles in the American health care system. Once considered a source of care for major injuries and life-threatening medical conditions, the emergency department has become part primary care physician and part social worker to many Americans. As early as the 1950s, it was noted that the number of emergency department visits in the United States was rising dramatically and that many of these visits were for conditions that did not require emergency treatment.^{1,2} Analysts attributed this phenomenon, at least in part, to the ascendancy of hospital-based subspecialists and the dwindling foundation of community-based general practitioners in the United States.3 More recently, overcrowding of hospital emergency departments in the inner city has reached desperate proportions.4 We recently reported the consequences of overcrowding at the emergency department at San Francisco General Hospital.⁵ Patients with noncritical conditions faced waiting times as long as 17 hours, and 15% of the patients left without ever seeing a physician. When contacted 1 to 2 weeks after their emergency department visit, patients who left without seeing a physician were twice as likely as patients who did see a physician to report deterioration of their health status.

Although use of emergency departments for nonemergency conditions has become ubiquitous, this pattern of utilization is especially prominent among patients who are poor, non-White, and without a regular source of primary care. 6–10 Davidson, in a review published over a decade ago, concluded that "low-income, inner-city residents tended to use [emergency departments] as substitutes for the family doctors they did not have." ¹¹ In

San Francisco, although there is a relatively extensive "safety net" of hospitaland community-based primary care clinics, these facilities have proved insufficient to meet the demand for primary care services. For example, appointment waiting times for patients new to the hospitalbased family practice and general medicine clinics at San Francisco General Hospital average 2 months (San Francisco General Hospital Outpatient Administration audit, unpublished data, July 1990). Although many of the primary care clinics have same-day appointments to accommodate the acute care needs of those who are established clinic patients, such appointments are often unavailable for patients without established clinic relation-

The problem of public hospital emergency department overcrowding invites a number of possible policy responses. Among these possibilities are augmenting emergency department resources and/or productivity, expediting transfer to inpatient beds for patients requiring hospitalization, developing urgent care clinics near emergency departments for rapid

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treatment of low-acuity problems, instituting patient cost-sharing, refusing emergency department services to patients with nonemergency conditions, and allowing the emergency department queue itself to continue to play a triage role by imposing a high "time price" on patients for use of the emergency department. A different approach, however, would be to increase access to alternative primary care services that offer continuity of care for a full spectrum of acute and chronic care needs-in effect, to reverse the trends noted by Davidson and substitute family doctors for the emergency departments. This strategy would require (1) identification of patients who use the emergency department for routine health care needs because of barriers to primary care services, (2) timely referral of these patients to appointments at primary care facilities, and (3) enhancement of the capacity of the primary care system to accommodate additional indigent patients. Increasing access to primary care services as an alternative to the emergency department could potentially reduce public emergency department overcrowding, provide indigent patients a less costly form of care for their immediate needs, and establish a regular source of care for those patients with ongoing health care needs.

We analyzed data collected in a large survey of patients waiting for care at the San Francisco General Hospital emergency department to test whether a policy of primary care referral would be clinically appropriate for and acceptable to this population. Our specific objectives were to determine the extents to which (1) patients rely on the emergency department because of lack of alternative sources of care; (2) patients using the emergency department have clinical conditions that do not require specialized emergency services; (3) patients would be willing to use an alternative source of care if one were available; and (4) patients who already have a regular source of primary care use the emergency department in a more clinically appropriate manner than do patients without a regular source of care. Although a number of studies have investigated one or two of these elements bearing on emergency department use and access to primary care,6-9,12 few have provided a comprehensive and systematic analysis of these features within a framework that could guide policy decisions.

Methods

We have previously described in detail the design of the emergency department survey.5 We surveyed all patients waiting for emergency care at San Francisco General Hospital during the week of July 9 to July 16, 1990. Patients were eligible for inclusion in the study if they were 18 years of age or older; spoke English, Spanish, or Cantonese; were mentally coherent; and were not assigned by a triage nurse to immediate care. All patients agreeing to participate were provided a self-administered survey in the language of their choice. The survey included questions about the patients' demographics and socioeconomic status, insurance coverage, chronic and acute health status, regular source of care, and other factors related to use of the emergency department. Health status was measured by means of a chronic disease checklist and standardized questions about pain and general health.13 Survey data were supplemented by information from the triage nurse record about the acuity of the patient's condition. Patients were contacted by telephone, by mail, or in person 7 to 14 days after their initial emergency department visit to complete a follow-up survey that included questions about health care utilization in the period since the emergency department visit. In addition, we reviewed registration or visit logs from all hospitals, every public clinic, and most neighborhood clinics in San Francisco for study subjects.

Access

We used survey questions about health insurance status and income as measures of financial access to primary care. The survey also included questions about whether patients had a regular source of medical care. The questionnaire listed seven reasons why patients might choose the emergency department as their source of care. The patients were asked to select the one reason most important to them, and we subsequently classified patients into three categories on the basis of these reasons. The first category, consisting of patients who lacked an accessible alternative, included patients who stated that they did not know where else to go or that they did not have insurance to pay for medical care. The second group, consisting of patients who said that they thought the emergency department was the best place to go for their problem, that it was easy to get to, or that they usually went there for care, was considered to use the emergency department because of its attractive qualities. The third group was made up of patients who were directed to the emergency department, either because their doctor or clinic told them to go there or because somebody else chose the emergency department for them. Seventy-five patients who gave more than one reason for choosing to receive care in an emergency department were excluded from the analysis of reasons.

The time of day a patient came for emergency department care was taken from the triage nurse intake record and was categorized as during clinic hours (Monday through Friday, 9:00 AM to 5:00 PM) or not during clinic hours (all other times).

Appropriateness of Emergency Department Use

There are no widely accepted validated standards for measuring the clinical appropriateness of emergency department use. 12,14,15 Our principal measure of clinical appropriateness was the acuity score assigned by the emergency department triage nurse. As a standard practice at the San Francisco General Hospital emergency department, triage nurses use written guidelines to assign each patient an acuity score. An acuity score of 1 indicates a patient with an immediate need for care, such as a patient with anterior chest pain consistent with myocardial infarction (ineligible for the present study). An acuity score of 2 indicates a patient with an urgent need for care, such as a patient with abdominal pain and fever. An acuity score of 3 indicates a patient who needs care within 3 hours, such as a patient with vaginal bleeding and stable vital signs. An acuity score of 4 indicates a patient with a nonurgent need for care, such as an afebrile patient with a rash. We considered emergency department use to be clinically appropriate for patients with an acuity score of 2, possibly appropriate for patients with a score of 3, and inappropriate for patients with a score of 4. We validated acuity scores with the outcome of hospitalization (using a χ^2 contingency table) and with patients' subjective ratings of their conditions (using a Spearman's rank test). Subjective measures included standardized survey questions about patients' ratings of the seriousness of their condition and the amount of pain they were experiencing, 13 as well as a question about the duration of their symptoms.

Willingness to Use the Clinic

When they first registered for emergency department care, patients were asked to answer yes or no to the following question about a hypothetical care alternative: "Sometimes people have to wait several hours in the emergency room. In-

	Total Sample (n = 700)	Regular Source of Care ^a		
		Yes (n = 222 [34%])	No (n = 428 [66%])	
Mean age, y*	36	41	34	
Female, %**	39	52	32	
Race/ethnicity, % African American Caucasian Latino Asian Other	34 28 26 7 4	39 27 21 9 4	33 29 28 7 4	
Unemployed, %***	68	71	61	
Median monthly income, \$	750	750	750	
Insurance status, %** None Medicaid Other	71 13 15	56 22 22	79 9 12	
Mean no. chronic illnesses*	1.2	1.7	1.0	
Mean general health status b*****	2.9	2.6	3.0	

^aOf the 700 patients, 650 responded to the question on regular source of care.

stead of waiting now, would you prefer to have a doctor's appointment at a definite time in 1 to 3 days?"

Analysis

We compared sociodemographic characteristics, time of emergency department visit, appropriateness of emergency department utilization, and patterns of medical care in the 1- to 2-week postemergency department visit period between patients with and without a regular source of care and between patients willing and unwilling to trade emergency department care for an appointment. For univariate analyses, we used the χ^2 statistic for comparisons of dichotomous or categorical variables, the Mann-Whitney U test for ordinal variables, and the Student's t test for continuous variables. To measure the independent association of a regular source of care with appropriateness of emergency department use and reasons for coming to the emergency department, we used multivariate logistic regression methods and the SPSS program, 16 controlling for other patient sociodemographic and clinical characteristics. In the logistic regression model of appropriateness, we looked for independent predictors of appropriate use of the emergency department (acuity score 2) vs questionable or inappropriate use (acuity score 3 or 4). Within the model, the independent variables of age, income, number of chronic illnesses, and general health score were entered as continuous variables, and the variables of sex, race (White vs other), employment (part-time or full-time vs other), and regular source of care (yes vs no) as dichotomous terms. Insurance status was classified as none, Medicaid, or other.

Results

Seven hundred patients waiting for care (79% of the 882 patients eligible for the study) agreed to participate in the survey. The most common reason for ineligibility was an acuity score of 1, which was assigned to 11% of the patients who underwent triage in the emergency department. Patients waiting for care in the emergency department were primarily poor, unemployed, non-White, young, and uninsured (Table 1). Six hundred fifty participants answered the question about a regular source of care; two thirds of these patients had no regular source. Patients with a regular source of care were significantly more likely to be older, female, unemployed, and insured, and to have more chronic illnesses and worse general health, than were patients with no regular source of care.

Access

When asked why they chose the emergency department for their care, 45% of the patients cited access barriers. Uninsured patients were significantly more likely to give this reason than were patients with Medicaid or other insurance (P < .001 by χ^2 ; Table 2). Overall, patients without a regular source of care were also more likely to cite access barriers, although when patients were stratified by insurance status this effect was significant only among patients with insurance other than Medicaid.

Appropriateness

Only 13% of the patients surveyed while waiting for care had conditions that were definitely clinically appropriate for emergency department services, as measured by a nurse-assigned acuity score of 2 (Table 3). One third of the patients were judged to have nonurgent problems that were clinically inappropriate for emergency department care (acuity score 4). Rashes and upper respiratory infections made up one quarter of these nonurgent problems. (Note that the study excluded patients with an acuity score of 1, who went directly to a treatment area.) Acuity scores were predictive of hospitalization; likelihood of admission both on the day of the emergency department visit and in the 1- to 2-week follow-up period declined for patients with less urgent acuity scores. Seven patients (3%) with an acuity score of 4 were hospitalized at some time during the study period.

Patients' own ratings of the severity of their condition and their pain indicated that many were seeking care for relatively routine or chronic problems. One third of the patients rated their problems as not at all or only a little serious. In addition, 16% stated they had no pain or mild pain. One third of the patients sought care for problems that had been present for at least a week. Nurse-assigned acuity scores correlated with patients' pain ratings and duration of symptoms, but not with patients' rating of the seriousness of their problem (Table 3).

Patients assigned an acuity score of 2 were much more likely to have a regular source of care than were patients assigned scores of 3 or 4. Within the multivariate logistic model, having a regular source of care remained a significant predictor of

b1 = poor, 5 = excellent.

^{*}The comparison of patients with and without a regular source of care is significant at P < .001 by Student's t test.

^{**}The comparison of patients with and without a regular source of care is significant at P < .001 by χ^2 test.

***The comparison of patients with and without a regular source of care is significant at P < .05 by χ^2 test.

***The comparison of patients with and without a regular source of care is significant at P < .01 by

more appropriate emergency department visits, that is, visits for more acute conditions (odds ratio = 2.4; Table 4). No other variable in the regression model was significantly associated with appropriate use of the emergency department.

Patients' Willingness to Use Clinics

Overall, 38% of the patients surveyed expressed a willingness to trade an emergency department visit for a clinic appointment within 3 days (Table 5). Willingness to accept an appointment at a later time was not associated with income, employment status, gender, reason for using the emergency department, travel time to the emergency department, or presence of a regular source of care. Patients without insurance were slightly more likely to be willing to trade for an appointment. In contrast, willingness to trade was strongly associated with several clinical variables. Patients who were willing to trade for an appointment were more likely to have an acuity score of 4 than were patients unwilling to trade. Compared with patients unwilling to trade for an appointment, patients willing to trade rated their problems as less serious and had had their problems for a longer time. Of the patients assigned an acuity score of 4 who stated a willingness to accept a clinic appointment in lieu of the emergency department visit, 2 (2%) were hospitalized at some time in the study period. One of these patients complained of leg weakness but had no focal deficits on initial examination by the emergency department physician. A decision to discharge the patient was reconsidered after a neurology consultation. The patient was hospitalized and was found to have spinal cord impingement from a plasmacytoma; he underwent a successful operation to remove the tumor. The other patient had a gastric ulcer, which had spontaneously stopped bleeding at the time he was hospitalized; the patient was discharged the day after admission.

Follow-up Utilization

Patients with a regular source of care were significantly more likely than patients without a regular source of care to visit a clinic in the 1 to 2 weeks after coming to the emergency department. Of those patients who saw a physician in the follow-up period, 21% of the patients without a regular source of care had follow-up visits consisting exclusively of further emergency department encounters, in comparison with 8% of patients with a regular source of care $(P = .04 \text{ by } \chi^2)$. Patients with and without a regular source of

TABLE 2—Reasons for Seeking Care in the Emergency Department

Insurance and Provider Status	Access Problem	Attractiveness	Directed	Other
Uninsured,* %				
With regular source of care (n = 119)	51	29	16	4
Without regular source of care (n = 328)	57	33	10	1
Medicaid, %				
With regular source of care (n = 46)	16	53	23	7
Without regular source of care $(n = 38)$	27	49	22	3
Other, %				
With regular source of care (n = 47)**	11	60	20	9
Without regular source of care $(n = 48)$	29	50	19	2

^{*}The comparison of uninsured patients and patients with Medicaid or other insurance by whether they stated an access problem as their reason for seeking care in the emergency department is significant at P < .001 by v² test.

^{**}With regard to patients having insurance other than Medicaid, the comparison of patients with and without a regular source of care by whether they stated an access problem as their reason for seeking care in the emergency department is significant at P < .05 by \(\chi^2 \) test.</p>

	Acuity Score		
	2 (n = 90)	3 (n = 366)	4 (n = 237)
Admitted, %			
Day of emergency department visit*	14	11	2
In the 14-day follow-up period	6	4	1
Seriousness of problem, %			
None/little bit	30	30	36
Moderate	29	34	29
Very/extreme	41	36	35
Pain.** %			
None/mild	11	13	24
Moderate	14	11	15
Severe	75	76	62
Duration of problem,*** %			
< 1 day	43	39	16
1–7 days	32	34	33
> 7 days	25	26	51
With a regular source of care,**** %	53	32	31

^{*}The comparison of patients' acuity score and likelihood of admission on the day of emergency department visit is significant at P < .001 by Mann-Whitney U test.

care were equally likely to leave the emergency room before being seen by a physician in the face of long waits at the time of their initial emergency department visit.

Discussion

Our results confirm that many poor and uninsured patients in San Francisco rely on the San Francisco General Hospital emergency department as a substitute for primary care providers. Many patients cited access barriers as their reason for seeking care in the emergency department, had conditions that could be managed in primary care facilities, and appeared willing to accept an alternative source of care.

Studies in other emergency departments have also documented the problems uninsured and underinsured Americans face in obtaining routine medical

^{**}The comparison of patients' acuity score and pain is significant at P < .001 by Spearman's rank correlation.

^{***}The comparison of patients' acuity score and problem duration is significant at P < .001 by Spearman's rank correlation.

^{****}The comparison of patients' acuity score and likelihood of having a regular source of care is significant at *P* < .001 by Mann-Whitney *U* test.

	Coefficient	Standard Error	Odds Ratio (95% CI)
Regular source of care (yes = 1)	0.871*	0.305	2.390 (1.32, 4.34)
Employed	0.097	0.337	1.100 (0.57, 2.13)
No insurance	-0.082	0.405	0.921 (0.42, 2.04)
Medicaid	-0.216	0.533	0.805 (0.28, 2.29)
Private or other insurance	Referent		
Age (y)	-0.002	0.011	0.998 (0.98, 1.02)
Sex (male = 1)	-0.319	0.299	0.727 (0.40, 1.31)
General health	-0.006	0.006	0.998 (0.98, 1.01)
Income	0.045	0.122	1.046 (0.82, 1.33)
Race (White = 1)	0.451	0.301	1.570 (0.86, 2.87)
Intercept	-1.976		

care. A survey conducted at the University of California Irvine Hospital emergency department of patients with clinical and demographic characteristics similar to those of our study population found that 33% of the patients had delayed seeking medical care in the previous year and 21% had delayed or been refused care for their current medical problem.7 A study of patients with minor illnesses at the George Washington University Hospital emergency department in Washington, DC, also found that poor and uninsured patients were more likely than nonpoor, insured patients to report a lack of a regular source of care as their reason for using the emergency department.8

Our results are consistent with those of other studies that have found widespread medically inappropriate use of the emergency department for nonemergency conditions. However, most evaluations of the appropriateness of emergency department use have not incorporated patients' own views of the severity of their medical condition. We found that one third of the patients themselves considered their problem of no or only minor seriousness, and that more than one third expressed a willingness to wait 1 to 3 days for a clinic appointment. In contrast, in a communitywide survey of a more middle-class population in Rochester, NY, performed almost two decades ago, Stratmann and Ullman found that 95% of emergency department users said that their problem was urgent and required care the same day.2 Although conditions in urban emergency departments have changed since the 1970s, the differences in attitude between the patients at San Francisco General Hospital and those in Rochester suggest that many indigent patients view their use

of the emergency department as a default choice caused by a lack of alternative sources of care, whereas wealthier patients may view their medical problems as specifically requiring emergency department care.

Hospitalization data validated the nurse-assigned acuity score and patients' judgment in being willing to wait for a later clinic appointment. Of the 96 patients with an acuity score of 4 who also stated a willingness to trade for an appointment, only 2 required hospitalization during the study period. Although both patients had serious medical conditions, it is not clear that the patient with the gastric ulcer was assigned the correct acuity score or that timely outpatient care rather than care in an emergency department would have altered either patient's clinical outcome. Treatment of low-acuity patients in primary care settings rather than an emergency department is also less expensive.17 It would thus appear to be sound clinical and health policy to redirect patients with low acuity scores and a willingness to use an alternative source of care to more appropriate primary care facilities.

How could this redirection be accomplished? One option would be to let the emergency department queue serve a triage role, as it presently does at San Francisco General Hospital. We have previously reported that, faced with long waits for care, patients with less acute problems were more likely to leave the emergency department without being seen than were patients who were more seriously ill; however, half of the patients who left before being seen had acuity scores of 2 or 3.5 In a similar public hospital emergency department study, Baker et al. found that patients in different acuity categories fac-

TABLE 5—Characteristics of Patients and Willingness to Trade Emergency Department Care for Appointment within 3 Days			
	Willing to Trade (n = 235 [38%])	Unwilling to Trade (n = 376 [62%])	
Mean age, y	37	36	
Female, %	40	40	
Unemployed, %	63	63	
Median monthly income, \$	750	750	
Insurance status, % None Medicaid Other	77 11 12	69 16 15	
With regular source of care, %	23	26	
Acuity score,* % 2 3 4	11 48 41	14 57 29	
Seriousness of problem,* % None/little bit Moderate Very/extreme	40 31 29	26 34 40	
Pain, % None/mild Moderate Severe	18 15 67	15 12 73	
Duration of problem,* < 1 day 1–7 days > 7 days	* % 24 31 45	35 36 29	

*The comparison of patients willing and unwilling to trade for an appointment is significant at P < .01 by Mann-Whitney U test.
**The comparison of patients willing and unwilling to trade for an appointment is significant at P < .001 by Mann-Whitney U test.

ing long waits were equally likely to leave without being seen and that many patients who left had urgent problems that subsequently required hospitalization. ¹⁵ Emergency department queues do not, therefore, appear to be a sufficiently discriminating mechanism for discouraging inappropriate use.

Another option would be to simply refuse care to patients coming to emergency departments for clinically inappropriate reasons. The University of California Davis Hospital emergency department implemented such a policy in 1988, denying services to patients with nonemergency conditions and providing these patients a list of clinics and private physicians accepting new patients. Although a monitoring program did not detect ob-

vious adverse outcomes, such as deaths, from this triage practice, no follow-up of the patients denied care was performed. It remains unclear whether patients denied care actually received care at other sites and how the policy affected health outcomes other than mortality.

Our results suggest a slightly different model of intervention for addressing the demand for public hospital emergency department care by patients who face barriers to primary care. Triage nurse evaluation could be used to screen for patients whose clinical conditions do not require emergency department care. Willing patients could be offered urgent care appointments at primary care clinics in the patients' neighborhoods. Because of the difficulties patients encounter in scheduling timely appointments, it might be necessary for clinics to reserve appointments for emergency department referrals and to have emergency department staff assign patients a designated appointment slot rather than simply give patients a clinic telephone number to call. There is increasing awareness of the importance of patient preference in medical decision making,18 and our results suggest that patients' preferences should be considered in the referral process. Many patients we surveyed expressed a willingness to receive care at a clinic rather than at the emergency department, and the referral process may prove more successful if the emergency department does not unilaterally make referral decisions.

An alternative to referral to primary care clinics would be development of a hospital-based urgent care clinic that could accept new patients with low-acuity conditions on a drop-in or next-day appointment basis. A number of public hospitals have such facilities. This type of service may be simpler to administer and require less patient effort to use. Many patients may simply want care on an episodic basis and neither need nor desire primary care on a continuity-of-care model, although lack of a regular source of care is less often voluntary among the poor than among the more affluent.¹⁹

There are potential advantages, however, to referring emergency department patients to facilities offering more comprehensive primary care services. Studies have found that follow-up of diagnostic evaluations initiated in emergency departments is often inadequate for patients without regular providers, 20 and that many uninsured patients have not received cancer screening and other health care maintenance services. 21 Moreover,

our findings that patients with a regular source of care used the emergency department more appropriately and relied less upon it for follow-up care suggest that establishing a regular source of primary care may have a sustained effect on altering inappropriate patterns of emergency department use by indigent patients. Other studies, including demonstration projects funded by the Robert Wood Johnson Foundation and Medicaid, have also found that patients with a regular source of care use the emergency department more appropriately.8,9,17,22-24 Although directing some patients to primary care settings should reduce emergency department waiting times, these gains may be offset if shorter waits attract new patients to the emergency department.17

Our policy suggestions are consistent with the recommendations of the American College of Emergency Physicians for addressing emergency department overcrowding.25 There are serious challenges, however, to implementing a model program of referral from public hospital emergency departments to primary care providers in the current policy context. Successful referral would require a greater level of communication and coordination between public hospital emergency departments and primary care facilities than currently exists in most communities. Pilot programs would need to test whether patients' stated willingness to use alternative sources of care reliably predicts attendance at scheduled primary care appointments. Further research could refine measures for assessing which patients truly require emergency department services. As the long waits for new patient appointments indicate, public clinics in cities such as San Francisco may already be operating at peak capacity and may be unable to accommodate new urgent care referrals without an infusion of additional resources.

Problems of emergency department use are not limited to uninsured patients in the United States, 26,27 and the dominant factors accounting for use of emergency departments may differ among settings and populations. However, poor and uninsured patients in the United States are particularly vulnerable in a system that does not assure everyone of financial access to basic medical care. Many patients coming to the public hospital emergency department may not require emergency services, but almost all have health care needs that deserve medical attention. Policies that deny patients emergency department care either explicitly, through criteria for refusing care, or implicitly, through long waiting times, without assuring patients of access to an alternative source of care are ethically and clinically unacceptable. \square

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